Sustainability Perspectives from a Federal Viewpoint



Prepared Remarks from ROBERT C. TAPELLA, *Public Printer of the United States*National Environmental Health & Safety Conference Annual Technical Conference

Sheraton City Centre in Indianapolis, Indiana | March 17, 2009



ROBERT C. TAPELLA, Public Printer of the United States

Sustainability Perspectives from a Federal Viewpoint

Prepared Remarks from ROBERT C. TAPELLA, *Public Printer of the United States*National Environmental Health & Safety Conference Annual Technical Conference Sheraton City Centre in Indianapolis, Indiana | March 17, 2009

Good morning. My name is Bob Tapella. I am the Public Printer of the United States. It's wonderful to be here at the 2009 National Environmental Health & Safety Conference in Indianapolis, Indiana.

It's tough to follow a journalist, especially the Editor in Chief of my favorite trade journal, my friend Bill Esler.

So, who is a first timer? I am too! In this tough economy, it I great to see so many people here!

The Public Printer serves as the Chief Executive Officer of the United States Government Printing Office. Our mission is to keep the American people informed about the work of their Government.

Benjamin Franklin was the first to hold the title of "Publick Printer" for the colonies of Pennsylvania and Delaware before the American Revolution.



More than two hundred years later, I was entrusted with the same responsibility: to record the words and actions of our Government and to make certain that these documents of our democracy are made widely available to the public and kept in perpetuity.

Each day and every day, I remind myself of this incredible opportunity and responsibility. There is a portrait of Ben Franklin hanging over the fireplace in my office, and he looks over my shoulder every day. I'm certain Ben would be fascinated by just how much our industry has evolved and perhaps more importantly, where we're going.

This afternoon, I will begin by talking about the Government Printing Office and the roles we play. Then I'd like to talk briefly about paper and I'll finish with my views on sustainable environmental stewardship.

GPO Yesterday and Today

When the GPO was established in 1860, printers set type by hand under candlelight, printing presses were driven by belt systems powered by steam, and deliveries each morning to the Capitol were by horse-drawn cart.

Since then, every Public Printer has had to adapt the agency to new technologies and new ways of meeting the needs of Congress, Federal organizations, and the American people. Today, every day, GPO delivers the *Congressional Record* and the *Federal Register* and numerous other products and services—in print and digitally—while also building the digital tools of the future that will enable our Government to work more effectively and efficiently.

Created in 1860 by an Act of Congress, GPO opened its doors for business on March 4, 1861—the same day Abraham Lincoln was inaugurated as President. Through war and peace, boom and bust, GPO has been there, producing and distributing the official documents of our Nation.

It was at GPO that the text for the Emancipation Proclamation was likely set, and it was at GPO that ink was put to paper for the declarations of war sought by Presidents Woodrow Wilson and Franklin Roosevelt. A GPO bookbinder created the leather covers used for the surrender documents that were signed on the deck of the battleship Missouri in Toyko Bay in 1945.

More recently, GPO produced the official Government edition of the 9/11 Commission's final report in both print and online formats. For the Presidential Inaugural, GPO printed a range of materials including invitations, maps, signs, programs, tickets and other products using intricate security features—including some never before used in the United States. We produced and personalized the law enforcement credentials that were used by more than 40 different agencies that day, and more than 10,000 individual credentials were issued.

GPO also just finished producing President Obama's official photograph. It will hang in more than 7,000 Federal office buildings throughout America. The photograph is available for purchase by the public at the GPO Bookstore in Washington, DC and at our on-line bookstore. This printed product is a great example of the traditional craftsmanship coming out of our factory for nearly 150 years.

Last year, President Bush submitted The Budget of the U.S. Government for FY2009 to Congress electronically. This is the first time in history that such an important Government document was delivered electronically to Congress. I had the pleasure of delivering the e-Budget to Jim Nussell, then director of the Office of Management and Budget. GPO authenticated it by digital signature. GPO drew on its digital document expertise to comply with the President's request. The Budget, in both electronic and printed formats, represents the President's priorities. GPO produces the official and authentic printed Budget as well as the electronic version. The e-Budget, like other electronic documents produced by GPO, is protected by GPO's electronic Seal of Authenticity.

Earlier this month, GPO published in both electronic and printed formats President Obama's Overview of his FY2010 Budget. It, too, carries GPO's Seal of Authenticity. The GPO Seal of Authenticity verifies to anyone who downloads an electronic document that the content is official and unaltered. This Seal of Authenticity is the visible symbol that the documents of our democracy are official, even in electronic format. When the seal appears on an electronic document displayed on a computer screen, the reader can be certain that it's the genuine article. This truly ushered in a new era for GPO and the Federal Government.

Where once GPO relied solely on ink and paper, we now also use electronic ions and integrated circuits, but our job is still the same: to record the words and actions of our Government and make them widely available to the public and keep them in perpetuity.



Our mission and the notion of an informed public is one of the great ideas to emerge in the past millennium. It's an idea that was directly related to the single greatest invention of that era: Johann Gutenberg's development of moveable type some 570 years ago. This was not simply a method of producing ink-on-paper more economically. What Gutenberg did was create a means for easily transferring language—to a medium for widespread dissemination. The technologies we have today for accomplishing the same end—computers, e-mail, online systems, and even offset web presses—are all indebted to his vision.

GPO's Four Roles

GPO plays four primary roles today:

- **First:** GPO plays an integral role in the legislative and regulatory process by the daily work we do for the United States Congress and the Administration. We publish the Official Journals of Government, including two daily newspapers: the *Congressional Record* and the *Federal Register*. We process work for Senate and House bills, reports, hearings, documents, laws and other Congressional publications. In partnership with the office of the Federal Register, GPO prints and disseminates the official text of Federal laws, Presidential documents, and administrative regulations and notices.
- Second: GPO plays a facilitating role as we work with the American library community to provide free, open, and permanent public access to the documents of our democracy through the Federal Depository Library Program. Since 1813, depository libraries have safeguarded the public's right to know by collecting, organizing, maintaining, preserving, and assisting patrons with information from the Federal Government. As institutions committed to equity of access and dedicated to free and unrestricted public use, the Nation's more than 1,250 depository libraries serve as one of the vital links between "We the People" and our Government.
- Third: GPO plays a supportive role to all of the agencies and organizations of the Federal Government as we help them meet their printing and communication needs. This includes website design, commemorative publications, training DVD's, and traditional printing, too. We do this much like a print broker would. Last year we sent nearly 145,000 jobs to over 2,000 private sector vendors—printers in every state, plus Guam, Puerto Rico, and the Mariana Islands—with a value of nearly half a billion dollars.
- Finally fourth: GPO plays a critical role in our Nation's security by producing secure Federal credentials including passports for the Department of State. Although very important to GPO, security for the passport, which now includes an electronic chip, is only one plank in our platform of authentication. Our Federal agency customers come to GPO to help them authenticate for a variety of purposes: for permissions to access Government facilities and information; for approval to use special lanes to expedite border crossing; for published electronic Government documents as official and unaltered; and to authenticate identity and citizenship with a passport.



GPO and Secure Credentials

GPO produces other secure credentials, like the Immigration booklet, which is issued to non-citizens who are authorized to travel repeatedly to and from the United States. GPO also produces a credential for the U.S. Coast Guard. It verifies the identity, training, and qualifications of crew members aboard merchant ships.

The success of the e-passport and other travel booklets has enabled GPO to combine our traditional strengths in security printing and design with proven electronics to create secure Federal credentials like Smart Cards. Just as an e-passport controls access at U.S. ports of entry, Federal smart cards control access to Government facilities, networks, information, and other resources.

Starting with a blank secure card, embedded micro-electronics may include an integrated circuit and an antenna. Printed security features are added to the card, usually on both sides. Only when personalized information is encoded on the chip and printed or laser engraved on the card does a secure card become a secure credential.

The transformation from secure card to secure credential takes place at GPO's Secure Credential Center. Thousands of secure Federal credentials are personalized, affixed to letters or inserts, and prepared for mailing each day. Each secure credential is examined and tested for accuracy as part of our quality assurance process.

G₂O

GPO and Paper

Now that you have a little background on the Government Printing Office, I'd like to change my focus to paper.

As you know, substrates play an important role in printing. And as you could probably guess GPO uses a lot of paper. Last year, for use in our plant, GPO purchased over 31 million pounds of paper. That included nearly 1.1 billion sheets of xerographic copier paper (or 214,400 cartons), 40 million sheets of non-copier paper (4,000 skids), 15 million pounds of offset roll paper (10,000 rolls), 5 million pounds of newsprint roll paper (3,800 rolls), and nearly 1.5 million pounds of security paper for use in passport production.

Earlier I mentioned that GPO is also a very large print buyer. GPO estimates that on 145,000 jobs GPO procured from the private sector last year from around the country, we bought over a half a billion pounds of paper. Yes—over half a billion pounds of paper. That's roughly 50 billion standard 8 ½ by 11" sheets. If we were to lay it out end-to-end, it would circle the earth over 350 times.

I hope this background on the size and scope of GPO helps you to understand our role in the graphic communications industry as I begin to talk about perhaps the most important issue facing our industry today. Environmental issues have taken hold in the public's mind for many years. American companies in all areas of our economy have taken notice. The Graphic Communications industry is no exception. We have long had to contend in one way or another with many environmental factors, from solvent emissions to paper waste to the complex industrial chemicals and metals used in our processes. Too often though, our industry has focused on what must be done to avoid inspections and fines. But now we're looking ahead to the future and focusing on what should be done to deliver environmentally responsible print manufacturing.

I call this future sustainable environmental stewardship, which is more than just going "green." It is being proactive and making changes so that we are a more efficient operation that makes better use of the resources under our control. As graphic communication technologies have evolved, and have become more complex, the need to review our supply chains with the disciplines of systems thinking, lifecycle management, industrial ecology, and triple bottom line analysis has become necessary.

G₂O

This may surprise a few people, but sustainability is not a partisan issue. It's good business and good Government. In fact, about half of the Fortune 500 companies now publish sustainability reports and employ sustainability managers, including Kodak, Xerox, and Hewlett Packard.

Public awareness of sustainability has risen dramatically over the past few years but its origins lie in the concept of "sustained yield," which appeared as early as the late 18th century in the field of scientific forestry in Germany. Sustainability was probably most succinctly defined in 1987 at the World Commission on Environment and Development (otherwise known as the Brundtland Commission, after its Chairman), which was formed by the United Nations. According to the Brundtland Commission, sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. Some observers have pointed out that this is similar to the great law of the Iroquois Confederacy that states "In our every deliberation, we must consider the impact of our decisions on the next seven generations"

Business, Government, and society-at-large depend on print to a far greater degree than most realize, and the graphic communications industry faces a great opportunity in defining exactly what sustainable printing and communications means. Let me repeat myself: We face a great opportunity! We must look at the myriad of flows of energy, materials, and human effort required by the full scope of graphic communication supply chains and not just our printing plants. There must be a vision for the entire systems lifecycle of what we produce and consume, from how we source the raw materials to how we produce our products, to what happens to the products when consumers are done with them.

There are many aspects of the print supply chain that need to be identified, quantified, managed and improved if print is to be objectively defined as truly "green" or sustainable. Non-renewable energy use, greenhouse gas emissions, water use, un-sustainable materials sourcing, waste recovery, and local sourcing practices are just a few of them. And remember our industry is everywhere you see words and images—in books, magazines, billboards, clothing, web sites, CD's, documents, and even credit cards. Someone working in graphic communications made them all.

In fact, my alma mater, Cal Poly, defines graphic communication on their Web site as the art and science associated with the collection, presentation, production, and dissemination of information through visual media, including traditional printing, digital media, and online publishing. At GPO, we're involved in just about every facet of the graphic communications industry, either by producing it in our plant or procuring it for our customers.

We are beginning to review the entire lifecycle of everything we do at GPO. Like so many of the Fortune 500 Companies, I have appointed an executive whose sole job is to look at sustainable environmental stewardship. We're looking at our entire enterprise to make certain that we are being good stewards of the resources under our control. And remember, these resources are paid for with your tax dollars.



Currently, we print what are essentially two daily newspapers, the *Congressional Record* and the *Federal Register*. These are produced on 40% post-consumer waste recycled newsprint. They are printed on offset web presses just like those used in the newspaper industry and we have a significant amount of planned waste. As most of you know, make-ready on offset web presses uses a lot of paper. When printing large quantities it ends up being a relatively small percentage of the paper used in a job. Unfortunately, our quantities printed are continuing to decline, so I would like to see if we could move from web offset to digital equipment to significantly reduce paper consumption.

Digital itself is a key sustainability initiative, and it is at the core of an ongoing transformation of GPO's operations and programs. Where we continue to use paper, I would like GPO to use more environmentally responsible paper, both in our plant and for our agency customers. This is a complicated issue. Some of our customers have asked for more sustainable paper choices and I know that there are many challenges we face in providing them options. In addressing paper, we have to include office and publishing paper, as GPO is one of the largest providers of copier paper to Federal agencies.

We have had an open dialogue with the paper industry over the past year. It has been very helpful as we navigate and determine the parameters for gauging paper sustainability. Last May, I hosted a Paper Industry Day at GPO to listen and learn about paper sustainability from dozens of paper industry leaders from around the world. This year, I will be hosting another Paper Industry Day to further our quest for the most sustainable papers available. Important environmental issues come to mind in the manufacturing of paper. Millions of

trees are harvested and millions of tons of minerals are extracted. Over 75 billion kilowatt hours of electricity and billions of gallons of water are used, all resulting in the emission of tens of millions of tons of greenhouse gas each year.

There are now ways to make significant, environmentally positive improvements on all of these fronts including the use of renewable energy and utilization of industry-generated residue materials. Pulp and paper mills can use co-generation of energy for process heating, product drying, and electric power. There is also great promise in the development of integrated bio-refineries. These employ waste paper, agricultural waste, dedicated energy crops, and sustainably managed forest biomass as inputs to produce green energy and bio-fuels as well as paper and bio-polymers. With important advances in technology, and now with attractive, high quality paper available, I see the industry becoming a beacon for sustainability.

I would like to dramatically increase the use of 100% post-consumer waste recycled paper at GPO, provided the industry can meet the challenge of cost and performance. We've begun testing papers and running them in our digital print center. Additionally, we recently ran a 40lb white offset 100% post consumer waste recycled paper through our web presses. There was no difference in printability or run-ability as compared to the 30% post-consumer waste recycled paper that we've been using for years. We are adding more 100% post-consumer waste recycled papers to our qualified products list. And recently, the members of the Sustainable Energy and Environment Coalition (SEEC) in the House of Representatives requested a meeting to discuss the transition to 100% post-consumer waste recycled stationary paper for all Members of Congress.

Beyond 100% recycled paper, we need to look at the fiber used in other papers. Have the fibers come from responsibly managed forests? While there are a number of certification programs, only 10% of all the worlds' forests are certified to any system. Some of our customers are asking whether they can get paper certified by one of the programs. And so, we have expanded our print procurement regulations to allow our customers to specify certified papers.

The United States forest products industry is making great stride toward sustainability from managing the forests to manufacturing to recycling. The U.S. Forest Service estimates an average of 1.74 billion trees are planted in America every year. Last year, the American Forest and Paper Association announced that 56% of the paper consumed in America was recovered for recycling. This is an all-time high recovery rate. But it could and should be higher. The focus must remain on innovative practices and improved technologies that protect the environment and provide good jobs while making products that society needs.

Moving back to the printing industry, I am pleased that the Printing Industries of America, the Specialty Graphic Imaging Association, and the Flexographic Technical Association have joined together to form one central location for information on sustainable green printing activities. This new Sustainable Green Printing (SGP) Partnership serves to establish the



print and graphic communications industry as a leader within the business community for the adoption and promotion of sustainable business practices designed to reduce the global impact of our industry.

The SGP Partnership recognizes that sustainability is a journey and not an endpoint, such that the criteria used by this recognition program will expand and evolve over time as new techniques and technologies become available. Nine printing companies have been certified as Sustainable Green Printers by the Sustainable Green Printing Partnership. More than 80 printers have initiated the application process since it was finalized in August and are awaiting certification.

At GPO, we have made tremendous progress in reducing hazardous materials use and waste generation in GPO's plant. The Environmental Protection Agency (EPA) has lowered GPO's status from a Large Quantity to a Small Quantity Hazardous Waste Generator in recognition of our successful efforts to reduce such wastes. By the end of this year, I want GPO to become a Conditionally Exempt Small Quantity Generator of hazardous waste. That means, our entire 1.5 million square foot factory will produce less than 25 gallons of hazardous waste each month. We're close to this now and it should be attainable.

As part of this ongoing effort, a solvent recovery system to improve operations sustainability and generate significant cost savings has been installed. The system recovers solvent from color presses used in our plant through a distillation system. Up to 90% of the solvent is purified and recovered for reuse and the resulting distilled water is reused in the process as well. A minute amount of sludge material—a small fraction of the volume of the former waste stream—is then disposed as a non-hazardous waste. This system has reduced up to 90% of GPO's solvent waste and will eliminate about 5,000 gallons of hazardous waste from leaving GPO each year

We have reviewed other potential environmental impacts from our operation including our underground storage tank systems. We had both a 6,000-gallon gasoline tank and a 1,500-gallon solvent tank in our backyard. We decided that the potential environmental risk posed to the groundwater and to the public by the tanks outweighed their usefulness. Both were successfully removed, resulting in a "clean closure" and the elimination of the risks.

GPO's factory is composed of four buildings totaling 1.5 million square feet. GPO's newest building was completed in 1940. Our plant is located on multiple floors, requiring numerous elevators for the transportation of our product. The buildings are too large and antiquated to meet the printing and digital needs of the 21st century.

We have proposed constructing a modern factory at our current location that has the plant on the ground level, increasing efficiency and saving the American taxpayer money. We would like to become the first LEED Platinum printing plant in America. LEED is a voluntary green building rating system that provides measurable benchmarks for developing high-performance, sustainable buildings. Platinum is the highest standard.



In the meantime, we're taking steps to increase the efficiencies of the current factory. We are piloting a new bio-based green roofing system in a small portion of our factory that will double the typical life expectancy of a new roof. If this pilot is successful, we hope to be able to replace our entire roof with this application.

We have conducted multiple energy audits to help identify areas where we can increase our buildings efficiency by looking at programs and processes that have short returns on investment. Some of these include replacing over 25,000 light bulbs with lower wattage bulbs when they require replacement; installing a steam meter to further monitor steam consumption that will help identify faulty equipment and ensure its replacement/repair; evaluating the efficiency of the air handling units that supply air and humidification throughout the factory; and performing a compressed air audit of our factory's air system to increase efficiency and reduce energy loss. To put some of these numbers in perspective, here's what we spend on utilities:

Natural gas—about \$350,000 per year City water and sewer—about \$450,000 per year Electricity—about \$4 million per year Steam—about \$6 million per year

G:O

We're also investigating a total waste management system. This system would streamline GPO's current recycling and solid waste program by integrating multiple waste hauling contracts into one. It will help our operation run more efficiently as well as identify new waste streams, which potentially are new revenue sources—and ultimately will reduce the amount of waste that leaves our facility and finds its way to a landfill.

GPO has been recycling waste paper, copper, brass and scrap metal since 1861. In terms of recycling today, GPO recycles nearly 2 tons of toner cartridges, 13 hundred gallons of motor oil, 10,000 pounds of computers and electronics, 33,000 pounds of paper cores 200,000 pounds of metals, 1.5 million pounds of corrugated boxes, and more than 5 million pounds of paper each year.

In 2008, the 5.6 million pounds of waste paper we recycled resulted in 34,000 trees saved, 29 million gallons of water flow conserved, 3 million pounds of landfill waste diverted, and 5.9 million pounds of greenhouse gas emissions eliminated.

We just de-commissioned our film processing unit. This means we no longer create negatives at GPO. We were not creating many negatives anyways since we deployed computer-to-plate (CTP) technology more than a decade ago. But this minor change in business operations has eliminated 220 gallons a year of chemistry used in film processing.

We're evaluating our fleet of trucks and vehicles in operation at GPO. We're trying to determine if we need all of the vans and trucks currently in operation and to see if we can eliminate the older ones to increase the efficiency of our fleet. We currently have 2 vehicles that can use E-85 flex fuel. We're in negotiations to start using the Architect of the Capitol's E-85 fueling station just a few blocks from GPO. And we have taken delivery of our first hybrid vehicle!

As I mentioned earlier in the second role of GPO, we play a facilitating role by working with the American library community to provide free, open and permanent public access to the documents of our democracy through the Federal Depository Library Program. Paramount to our future is FDsys—GPO's Federal Digital System. On February 4, GPO launched FDsys, a world-class information management system designed to authenticate, preserve, version, and provide permanent public access to Government information. More than 154,000 documents are currently accessible with additional documents coming daily. We now have a flexible and extensible digital system that can put into action President Obama's call for transparency and open Government.

FDsys will contain information gathered through three methods: files submitted by Federal agencies and Congress, information gathered from Federal agencies' websites, and previously printed products which will be converted into digital files through scanning. This information will not only include text files, but also graphics, audio, and video files. When complete, FDsys will give the public a one-stop site for authentic, published Government information. GPO is releasing FDsys in phases. Each phase will introduce new content and functions.

In many ways electronic systems, such as FDsys, and non-print media are perceived to be more environmentally friendly than paper based systems. But are they? Computers, data centers, and other Internet transmission facilities and broadcast apparatus run on vast amounts of generated electricity and the electrons aren't free. According to the Energy Information Administration of the Department of Energy, in 2006 data centers and servers alone consumed 61 billion kilowatt hours of electricity. This amount doubled between 2001 and 2006 and is expected to double again by 2010!

Even Google searches leave a carbon footprint. According to a report in The Times of London a typical Google search on a desktop computer generates about 7 grams of carbon dioxide. Performing two searches is comparable to bringing a kettle to boil. While that may not sound like a lot energy, the report notes that Google handles about 200 million searches each day.

According to a recent Gartner study, the global IT industry generates about 2 percent of global carbon dioxide emissions, or about as much greenhouse gas as the world's airlines. And, don't forget the looming question of what to do with e-waste such as discarded computers, peripherals, and components? We cannot afford to think that digital media is without significant environmental impacts.

This may be a great opportunity for the printing and paper industry to take the lead by showing the complete lifecycle of our products. Hard-copy printing has been an easy target for negative commentary by some environmentalists—especially those going after printed material delivered by the U.S. Postal Service—but it is actually one of the least energy-intensive of all manufacturing industries. We'll probably never win a battle on paper vs. electronic nor do I think we should fight such a battle. But we need to understand that all aspects of graphic communications—print and electronic—have significant environmental impacts. And, we must take action.

Because GPO is not just about the printed word, I am equally concerned about our electronic carbon footprint. GPO's Information Technology Department has made incredible strides in reducing our energy demand while increasing our functionality and efficiency. While developing FDsys, GPO focused on building an energy efficient, sustainable system. FDsys requires 80 servers to operate. GPO sought out the most energy efficient servers available. We chose servers that use 50 watt processors instead of the standard 80 watt processors.

Last year, GPO's IT Department completed a server upgrade to provide faster and improved search results for our Government publications on GPO Access. This modification eliminated over 20 separate servers, and resulted in about a 50% reduction in energy to support this application. All components of the retired servers were recycled or used for parts within our current operation. These sustainable efforts in the transformation of GPO Access earned GPO international recognition as a finalist in the Computerworld "Best Practice in Green IT" Computing Awards last September.

GPO also plans to implement virtualization technology for our servers once this technology proves to be reliable for our applications. Virtualization offers us the ability to share single physical servers to support multiple applications across operating systems. This will further reduce our Information Technology energy consumption by over 60%.

GPO has also adopted a Citrix thin client solution for several processes which has substantially reduced our energy use. These initiatives replaced nearly 60 desktop systems with Citrix, reducing our power consumption by over 75%. GPO is also adopting Microsoft applications that better reduce paper waste and individual desktop energy consumption.

So there you have it: GPO is becoming a model for showing how sustainable environmental stewardship is good business and good Government. I would like to conclude with one of my favorite quotes on sustainability:

"Our position in the world has been attained by the extent and thoroughness of the control we have achieved over nature; but we are more, and not less, dependent upon what she furnishes than at any previous time of history."

President Theodore Roosevelt made this observation over one hundred years ago during a speech to a national conference on conservation held at the White House in 1908. It's just as accurate today as then, and certainly a call to sustainable environmental stewardship. At GPO, we intend to move forward with this timeless vision so eloquently expressed by one of America's greatest leaders.

Thank you.



